CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

April 6, 1984 / Vol. 33 / No. 13



*Recommendation of the Immunization Practices Advisory Committee (ACIP)*

## Supplementary Statement of Contraindications to Receipt of Pertussis Vaccine

*The following statement updates some of the previous recommendations regarding pertussis vaccine* (1). *The Immunization Practices Advisory Committee (ACIP) reviewed the available data concerning the risks of pertussis disease and pertussis vaccine to infants and children with personal or family histories of convulsions. Based on available evidence, the ACIP does not consider a family history of convulsion to be a contraindication to receipt of pertussis vaccine. However, a personal history of a prior convulsion should be evaluated before initiating or continuing immunization with vaccines containing a pertussis component (i.e., diphtheria and tetanus toxoids with pertussis vaccine [DTP]) (Table 1).*

### DEFERRAL OF DTP FOR INFANTS AND CHILDREN WITH PERSONAL HISTORIES OF CONVULSION(S)

Although there are uncertainties in the reported studies, recent data suggest that infants and young children who have previously had convulsions (whether febrile or nonfebrile) are more likely to have seizures following pertussis vaccination than those without such histories (*2*). Available data do not indicate that seizures temporally associated with vaccine administration predispose to permanent brain damage or exacerbate existing conditions. The incidence of pertussis in most areas of the United States is presently quite low. Consequently, for infants and young children who have histories of seizures before initiation of DTP immunization or who develop seizures before the four-dose primary series is completed, initiating or continuing pertussis immunization should be deferred until it can be determined that there is not an evolving neurologic disorder present. If such disorders are found, the infants or children should be given diphtheria and tetanus toxoids (DT) instead of DTP. If DT is used, three doses at least 4 weeks apart, followed by a fourth dose 6-12 months later, are recommended for infants. For children 1 year of age or older, two doses of DT at least 4 weeks apart, followed by a third dose 6-12 months later, are recommended.

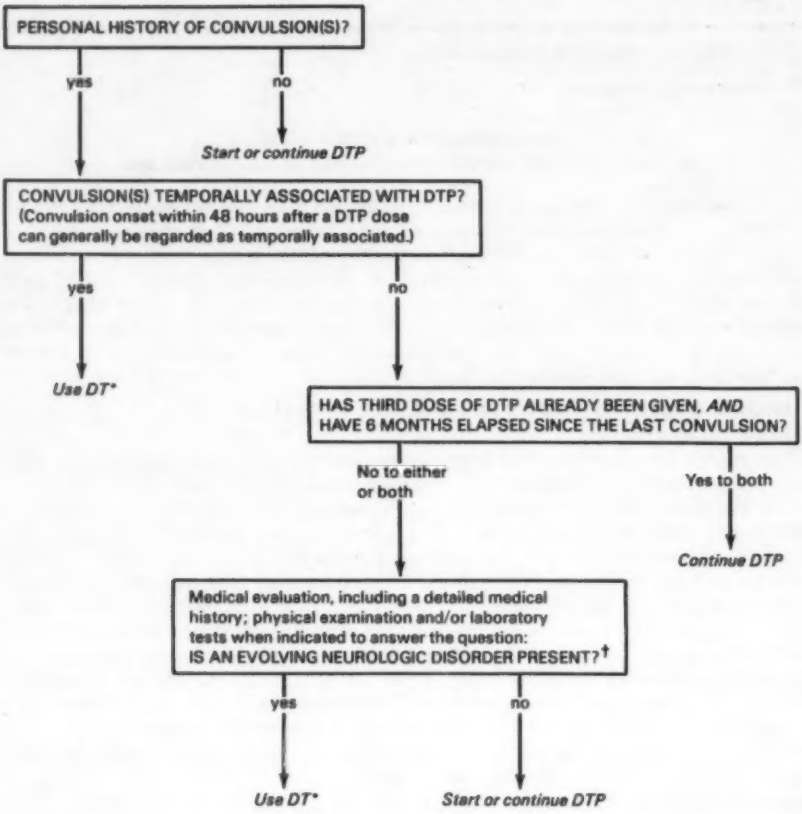
### RECOMMENDATIONS FOR BEGINNING OR CONTINUING DTP AFTER DEFERRAL

For infants and children whose DTP immunizations are deferred because of histories of convulsion(s), the decision whether to proceed with DTP immunization can usually be made within the next few months. For infants who have received fewer than three doses of DTP, such a decision in most instances should be made no later than at 1 year of age. Following individual assessment, it may be decided to proceed with DTP, because infants and young children with convulsive disorders also appear to be at higher risk of adverse outcomes if they contract pertussis disease. Further, if unimmunized infants attend day-care centers, special clinics, and residential-care settings where other children may be unimmunized or if they

*Pertussis Vaccine -- Continued*

**TABLE 1. Guidelines for diphtheria-tetanus-pertussis (DTP) immunization of infants and young children with histories of convulsion(s)**

The following general guidelines cannot cover every situation. Individualized medical judgment in specific cases may indicate a different course of action.




*For infants and children who received diphtheria-tetanus (DT), but who, on further evaluation, can be given pertussis vaccine, a separate pertussis vaccine is available. It is distributed by the Michigan State Department of Public Health.

†If the presence or absence of an evolving neurologic disorder cannot be established within 6 months after deferral of DTP, DT should be given rather than further delaying immunization.

*Pertussis Vaccine — Continued*

travel to or reside in areas where the disease is endemic, they may be at increased risk of exposure to pertussis.

For infants and children with stable neurologic conditions, including well-controlled seizures, the benefits of pertussis immunization outweigh the risks, and such children may be vaccinated. The occurrence of single seizures (temporally unassociated with DTP) in infants and young children, while necessitating evaluation, need not contraindicate DTP immunization, particularly if the seizures can be satisfactorily explained. An example might be a febrile seizure in the course of exanthem subitum in a 14-month-old child. As with all infants or children with one or more febrile seizures, consideration of continuous anticonvulsant prophylaxis may be warranted.

Parents should be fully informed of the benefits and risks of immunization with DTP. Parents of infants and children with histories of convulsions should particularly be made aware of the slightly increased chance of post-immunization seizures. A minimum of three doses of DTP given at intervals of at least 4 weeks is necessary to provide adequate protection against pertussis. A fourth dose 6-12 months later is also recommended.

**CONTRAINDICATIONS TO PERTUSSIS VACCINE**

Hypersensitivity to vaccine components, presence of an evolving neurologic disorder, or a history of a severe reaction (usually within 48 hours) following a previous dose all remain definitive contraindications to the receipt of pertussis vaccine. Severe reactions include collapse or shock, persistent screaming episode, temperature 40.5 C (105 F) or greater, convulsion(s) with or without accompanying fever, severe alterations of consciousness, generalized and/or local neurologic signs, or systemic allergic reactions. Although hemolytic anemia and thrombocytopenic purpura have previously been considered contraindications by the ACIP, the evidence of a causal link between these conditions and pertussis vaccination is not sufficient to retain them as contraindications.

**OTHER IMMUNIZATIONS FOR INFANTS AND CHILDREN FOR WHOM PERTUSSIS VACCINE IS CONTRAINDICATED**

Immunization with DT and/or oral polio vaccine is not known to be associated with an increased risk of convulsions. Therefore, a history of prior convulsions is not a contraindication to receipt of these toxoids and vaccine. In addition, a history of prior convulsion(s) is not a contraindication for measles-mumps-rubella (MMR) vaccine. Further details concerning DTP vaccine or DT toxoids can be found in the 1981 ACIP statement (*1*).

*References*

1. ACIP. Diphtheria, tetanus, and pertussis: guidelines for vaccine prophylaxis and other preventive measures. MMWR 1981;30:392-6, 401-7.
2. CDC. Adverse events following immunization. Surveillance Report No. 1, 1979-1982 (in press).

## *Epidemiologic Notes and Reports*

### Isotretinoin — A Newly Recognized Human Teratogen

Isotretinoin (Accutane®), an orally administered, retinoic acid licensed in September 1982 for treating severe, intractable cystic acne, has been associated with spontaneous abortions and congenital malformations. The manufacturer (Roche Laboratories) and the U.S. Food and Drug Administration (FDA) have received 29 case reports of adverse reproductive outcomes among women taking isotretinoin (Accutane) during the first trimester of pregnancy.

*Isotretinoin — Continued*

Excessive amounts of vitamin A and its congeners—which include retinoic acids—are known to be teratogenic in rodents and nonhuman primates (*1*). A daily dose of 10 mg/kg of retinoic acid on days 20-44 of gestation was teratogenic in studies of nonhuman primates (*2*). A variety of structural malformations was produced: malformed ears, cleft palates, limb reduction defects, contractures, and craniofacial bone anomalies. However, isotretinoin is normally prescribed in a dosage of 40-80 mg per day, a range of approximately 0.7-1.4 mg/kg/day for women weighing 60 kg (132 pounds).

Before the outcomes of their pregnancies were determined, 18 pregnant women exposed to this drug were prospectively identified by the manufacturer. Among this group, 13 spontaneous abortions, four normal infants, and one infant with malformations occurred. (No information is available about whether the women who had spontaneous abortions were otherwise predisposed for adverse pregnancy outcomes.) A second similar group of 16 women was identified after the outcomes of their pregnancies were determined. These pregnancies resulted in six spontaneous abortions, one normal infant, and nine infants with similar congenital malformations, which included microtia with or without agenesis of the ear canal (eight of 10 infants); structural central nervous system abnormalities (9/10), including hydrocephalus and microcephaly; and congenital heart defects (5/10) represented by conotruncal malformations, aortic arch atresia, and ventricular septal defects. Other reported malformations included facial dysmorphism, microphthalmia, micrognathia, and cleft palate.

*Reported by FW Rosa, MD, Epidemiology Development Br, Div of Drug and Biologics Experience, U.S. Food and Drug Administration; Birth Defects Br, Chronic Diseases Div, Center for Environmental Health, CDC.*

**Editorial Note:** Although the total number of exposed, pregnant women is unknown, the consistency of the laboratory and human experiences with isotretinoin exposure during pregnancy provides sufficient evidence to conclude that the drug is a human teratogen.

The spectrum of malformations described among these infants exposed to isotretinoin resembles that found in the animal studies. The 10 infants referred to above have an unusual characteristic pattern of malformations not consistent with any known syndromes. The occurrence by chance of these defects in 10 infants of isotretinoin-exposed pregnant women is highly unlikely. Among exposed pregnant women, the percentage of infants who will have malformations is unclear, since only five of the prospectively followed fetuses reached a viable gestational age. The large percentage of spontaneous abortions among the prospectively identified women suggests that fetotoxicity is a more common adverse outcome of exposure than malformation of a live infant. As expected, birth defects were reported more frequently among exposed women after the outcomes of their pregnancies were determined than were spontaneous abortions and normal births.

Since the drug was first marketed in the United States in September 1982, the isotretinoin package insert has carried the following warning: "Because teratogenicity has been observed in animals given isotretinoin, patients who are pregnant or intend to become pregnant while undergoing treatment should not receive Accutane. Women of childbearing potential should not be given Accutane unless an effective form of contraception is used, and they should be fully counseled on the potential risks to the fetus should they become pregnant while undergoing treatment. Should pregnancy occur during treatment, the physician and patient should discuss the desirability of continuing the pregnancy." In July 1983, after the first reports of malformed newborns, Roche Laboratories mailed letters to U.S. physicians and pharmacists reiterating important portions of the package insert and suggesting a pregnancy test before initiation of therapy.

The continuing reports of severely malformed infants born to mothers inadvertently exposed to isotretinoin emphasize the need to repeat the warnings of teratogenicity. Any

*Isotretinoin — Continued*

woman taking isotretinoin who becomes pregnant should receive informed counseling about the risks to her fetus.

To define the teratogenic risks of isotretinoin more accurately, further information about inadvertently exposed fetuses and infants is needed. This information is most valuable when an exposed, pregnant woman is reported before the outcome is determined. Physicians are urged to report exposures to Roche Laboratories by calling collect (201) 235-3021.

Since fetotoxicity appears to be a common adverse outcome of isotretinoin exposure, studies of abortuses, either spontaneous or induced, will supplement information already accumulated on the risks to the fetus. Arrangements for analyses of abortuses can be made by contacting the Epidemiology Development Branch, Division of Drug and Biologics Experience, FDA, or the Department of Environmental and Drug-Induced Pathology, Armed Forces Institute of Pathology, Washington, D.C. 20306, telephone (202) 576-2434.

*References*

1. Kochhar DM, Kuczynski-Brown BA, Tellone CI. Comparative teratogenicity of all-trans- and 13-cis-retinoic acid in mice as studied by in vivo and in vitro methods. Teratology 1983;27:58A.
2. Fantel AG, Shepard TH, Newell-Morris LL, Moffett BC. Teratogenic effects of retinoic acid in pigtail monkeys (Macaca nemestrina). I. General features. Teratology 1977;15:65-71.

## Poisoning from Elderberry Juice — California

On August 26, 1983, eight people with acute gastrointestinal and neurologic symptoms were flown by helicopter to a Monterey, California, hospital. Earlier that day, they had attended a gathering for 25 persons of a religious/philosophic group in a remote area of Monterey County. Within 15 minutes after drinking refreshments, 11 persons began to have nausea and vomiting. The eight persons most ill reported nausea, vomiting, abdominal cramps, and weakness. Some also complained of dizziness and numbness; one was stuporous and was hospitalized. Arterial blood gases were normal for all eight, as were serum cyanide levels (reported later). The San Francisco Bay Area Regional Poison Control Center was promptly consulted regarding treatment for possible cyanide poisoning, but specific treatment was not given because 4 hours had elapsed since exposure, blood gases were normal, and the patients were stable. All recovered quickly, including the patient hospitalized overnight.

Investigation by the Monterey County Health Department revealed that staff at the religious center had gathered local, wild elderberries 2 days before the outbreak and had prepared juice from them the next day. Bunches of berries were crushed with their leaves and branches in a stainless-steel press. Apple juice, water, and sugar were added, and the mixture was stored overnight. The drink was served the next day in a stainless-steel pot to the group of 25 persons. Severity of illness correlated with the amount of elderberry juice consumed; those who drank only tea remained well. The hospitalized person had consumed five glasses of the juice; the others, much less.

**Editorial Note:** The indigenous elder tree of the western United States, *Sambucus mexicana*, can grow to 30 feet and produces small (¼-inch), globular, nearly black berries that can be covered with a white bloom at maturity. The berries are juicy and edible when mature. The cooked berries are commonly eaten in pies and jams, and berry juice can be fermented into wine. The fresh leaves, flowers, bark, young buds, and roots contain a bitter alkaloid and also a glucoside that, under certain conditions, can produce hydrocyanic acid. The amount of acid produced is usually greatest in young leaves. There may be other toxic constituents in this plant. The root is probably the most poisonous and may be responsible for occasional pig

*Poisoning — Continued*

deaths; cattle and sheep have died after eating leaves and young shoots.

Although a review of the medical literature revealed no other reports of elderberry juice poisoning in the past 20 years, there are older, anecdotal reports of poisoning in children from the related elder, *S. canadensis*. The religious center staff has been advised that, while elderberries may be safe to consume, particularly if cooked (uncooked berries may produce nausea), leaves and stems should not be crushed in when making juice.

*Reported in* California Morbidity *(February 24, 1984) by S Kunitz, MD, RJ Melton, MD, T Updyke, Monterey County Health Dept, D Breedlove, PhD, California Academy of Sciences, San Francisco, SB Werner, MD, California State Dept of Health Svcs.*

*Bibliography*

Casarett LJ, Doull J, eds. Toxicology: the basic science of poisons. New York: Macmillan Publishing Company, 1975.

Kingsbury JM. Poisonous plants of the United States and Canada. Englewood Cliffs, New Jersey: Prentice-Hall, 1964.

Millspaugh CF. American medicinal plants. New York: Dover Publications, Inc.

Muenscher WC. Poisonous plants of the United States. New York: Macmillan Company, 1951.

Osol A, Farrar GE. The Dispensatory of the United States of America. 25th ed. Philadelphia: JB Lippincott Company, 1955.

Pammel LH. A manual of poisonous plants. Cedar Rapids, Iowa: The Torch Press, 1911.

**TABLE I. Summary—cases specified notifiable diseases, United States**

| Disease | 13th Week Ending | | | Cumulative, 13th Week Ending | | |
|---|---|---|---|---|---|---|
| | March 31, 1984 | April 2, 1983 | Median 1979-1983 | March 31, 1984 | April 2, 1983 | Median 1979-1983 |
| Acquired Immunodeficiency Syndrome (AIDS) | 55 | N | N | 880 | N | N |
| Aseptic meningitis | 98 | 94 | 77 | 1,004 | 1,047 | 854 |
| Encephalitis: Primary (arthropod-borne & unspec.) | 21 | 23 | 13 | 185 | 238 | 203 |
| Post-infectious | 2 | 2 | 2 | 9 | 20 | 22 |
| Gonorrhea: Civilian | 15,528 | 15,622 | 17,825 | 201,051 | 225,373 | 236,316 |
| Military | 508 | 465 | 465 | 5,011 | 6,014 | 6,812 |
| Hepatitis: Type A | 408 | 471 | 483 | 5,617 | 6,119 | 6,251 |
| Type B | 487 | 470 | 362 | 5,690 | 5,432 | 4,669 |
| Non A, Non B | 56 | 64 | N | 805 | 798 | N |
| Unspecified | 91 | 152 | 185 | 1,527 | 1,869 | 2,557 |
| Legionellosis | 11 | 9 | N | 124 | 145 | N |
| Leprosy | - | 7 | 5 | 47 | 63 | 45 |
| Malaria | 18 | 11 | 18 | 139 | 158 | 192 |
| Measles: Total* | 54 | 75 | 76 | 433 | 497 | 673 |
| Indigenous | 45 | 47 | N | 397 | 431 | N |
| Imported | 9 | 28 | N | 36 | 66 | N |
| Meningococcal infections: Total | 69 | 64 | 80 | 849 | 837 | 898 |
| Civilian | 69 | 63 | 80 | 849 | 825 | 888 |
| Military | - | 1 | 1 | - | 12 | 9 |
| Mumps | 99 | 93 | 238 | 923 | 1,087 | 1,770 |
| Pertussis | 34 | 41 | 23 | 426 | 353 | 268 |
| Rubella (German measles) | 16 | 38 | 96 | 137 | 283 | 668 |
| Syphilis (Primary & Secondary): Civilian | 667 | 485 | 485 | 7,118 | 8,349 | 7,529 |
| Military | 5 | 20 | 10 | 83 | 126 | 96 |
| Toxic Shock syndrome | 8 | 9 | N | 78 | 120 | N |
| Tuberculosis | 500 | 480 | 553 | 4,926 | 5,295 | 6,011 |
| Tularemia | 3 | - | 1 | 19 | 36 | 23 |
| Typhoid fever | 2 | 16 | 15 | 87 | 87 | 103 |
| Typhus fever, tick-borne (RMSF) | 4 | 3 | 1 | 13 | 15 | 14 |
| Rabies, animal | 99 | 139 | 143 | 1,050 | 1,449 | 1,294 |

**TABLE II. Notifiable diseases of low frequency, United States**

| | Cum. 1984 | | Cum. 1984 |
|---|---|---|---|
| Anthrax | - | Plague | 2 |
| Botulism: Foodborne | 4 | Poliomyelitis: Total | - |
| Infant (Ohio 1, Ind. 1, W.Va. 1, Calif. 2) | 24 | Paralytic | - |
| Other | 2 | Psittacosis (Calif. 1) | 17 |
| Brucellosis (Miss. 1) | 25 | Rabies, human | - |
| Cholera | - | Tetanus (Calif. 1) | 7 |
| Congenital rubella syndrome | 1 | Trichinosis | 8 |
| Diphtheria | - | Typhus fever, flea-borne (endemic, murine) | 6 |
| Leptospirosis (Mo. 1, N.C. 1) | 5 | | |

*One of the 54 reported cases for this week was imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

## TABLE III. Cases of specified notifiable diseases, United States, weeks ending March 31, 1984 and April 2, 1983 (13th Week)

| Reporting Area | AIDS | Aseptic Meningitis | Encephalitis | | Gonorrhea (Civilian) | | Hepatitis (Viral), by type | | | | Legionellosis | Leprosy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Primary | Post-infectious | | | A | B | NA,NB | Unspecified | | |
| | Cum. 1984 | 1984 | Cum. 1984 | Cum. 1984 | Cum. 1984 | Cum. 1983 | 1984 | 1984 | 1984 | 1984 | 1984 | Cum. 1984 |
| UNITED STATES | 880 | 96 | 185 | 9 | 201,051 | 225,373 | 408 | 487 | 56 | 91 | 11 | 47 |
| NEW ENGLAND | 31 | 1 | 11 | - | 6,340 | 5,723 | 3 | 39 | 2 | 10 | - | 2 |
| Maine | - | - | - | - | 244 | 322 | - | - | - | - | - | - |
| N.H. | 1 | 1 | 4 | - | 147 | 168 | 1 | 6 | - | - | - | - |
| Vt. | - | - | 1 | - | 96 | 91 | - | 1 | - | - | - | - |
| Mass. | 18 | - | 4 | - | 2,424 | 2,589 | 1 | 18 | 1 | 8 | - | 2 |
| R.I. | - | - | - | - | 396 | 308 | - | - | - | - | - | - |
| Conn. | 12 | - | 2 | - | 3,033 | 2,245 | 1 | 14 | 1 | 2 | - | - |
| MID ATLANTIC | 413 | 12 | 23 | - | 27,873 | 29,198 | 91 | 97 | 10 | 6 | - | 2 |
| Upstate N.Y. | 33 | 6 | 5 | - | 4,274 | 4,389 | 20 | 17 | 7 | 2 | - | 2 |
| N.Y. City | 306 | 1 | - | - | 12,304 | 12,434 | 27 | 19 | - | 2 | - | - |
| N.J. | 63 | - | 12 | - | 4,326 | 5,203 | 24 | 37 | 3 | 2 | - | - |
| Pa. | 11 | 5 | 6 | - | 6,969 | 7,172 | 20 | 24 | - | - | - | - |
| E.N. CENTRAL | 42 | 12 | 38 | 1 | 25,452 | 31,621 | 26 | 57 | 6 | 8 | 5 | 3 |
| Ohio | 9 | 5 | 15 | 1 | 7,124 | 7,996 | 10 | 10 | - | 2 | 2 | 1 |
| Ind. | 7 | 1 | 7 | - | 3,217 | 3,727 | 2 | 13 | 2 | 4 | 1 | - |
| Ill. | 21 | 2 | 4 | - | 4,140 | 8,631 | 6 | 6 | - | - | - | - |
| Mich. | 3 | 4 | 9 | - | 7,863 | 8,438 | 8 | 28 | 4 | 2 | 2 | 2 |
| Wis. | 2 | - | 3 | - | 3,108 | 2,839 | - | - | - | - | - | - |
| W.N. CENTRAL | 4 | 3 | 4 | - | 9,613 | 10,654 | 12 | 8 | 4 | 1 | 1 | - |
| Minn. | 1 | 1 | - | - | 1,362 | 1,539 | 3 | 3 | - | 1 | 1 | - |
| Iowa | - | 1 | 3 | - | 1,115 | 1,110 | 1 | - | 1 | - | - | - |
| Mo. | 2 | - | - | - | 4,454 | 5,162 | 1 | 2 | 1 | - | - | - |
| N. Dak. | - | - | - | - | 108 | 103 | - | - | - | - | - | - |
| S. Dak. | - | 1 | - | - | 286 | 311 | 5 | 1 | - | - | - | - |
| Nebr. | 1 | - | - | - | 628 | 570 | 1 | - | - | - | - | - |
| Kans. | - | - | 1 | - | 1,660 | 1,859 | 1 | 2 | 2 | - | - | - |
| S. ATLANTIC | 112 | 21 | 35 | 5 | 51,344 | 58,901 | 24 | 106 | 10 | 11 | - | 2 |
| Del. | 3 | - | 1 | - | 838 | 1,054 | 1 | 2 | 1 | - | - | - |
| Md. | 11 | 2 | 6 | - | 6,361 | 7,485 | 2 | 14 | 2 | 1 | - | - |
| D.C. | 14 | 1 | - | - | 3,666 | 4,003 | 1 | 1 | - | - | - | - |
| Va. | 7 | 1 | 11 | 3 | 5,008 | 4,850 | - | 10 | 3 | 2 | - | 1 |
| W. Va. | 1 | - | 3 | - | 607 | 568 | - | 2 | - | - | - | - |
| N.C. | 2 | 3 | 7 | 1 | 8,361 | 7,982 | 4 | 17 | 1 | 2 | - | - |
| S.C. | 3 | - | 1 | - | 4,867 | 5,644 | 1 | 11 | - | - | - | - |
| Ga. | 11 | 1 | 3 | - | 9,860 | 13,807 | 4 | 20 | 1 | - | - | - |
| Fla. | 60 | 13 | 3 | 1 | 11,776 | 13,508 | 11 | 29 | 2 | 6 | - | 1 |
| E.S. CENTRAL | 6 | 1 | 8 | - | 16,854 | 19,384 | 23 | 26 | 2 | 1 | - | - |
| Ky. | 4 | - | 1 | - | 2,138 | 2,367 | 18 | 6 | - | - | - | - |
| Tenn. | - | 1 | 2 | - | 6,929 | 7,609 | 2 | 10 | 1 | 1 | - | - |
| Ala. | 1 | - | 5 | - | 5,200 | 6,030 | 3 | 9 | 1 | - | - | - |
| Miss. | 1 | - | - | - | 2,587 | 3,378 | - | 1 | - | - | - | - |
| W.S. CENTRAL | 37 | 7 | 14 | 1 | 27,934 | 30,667 | 31 | 32 | 3 | 32 | - | 3 |
| Ark. | - | - | - | 1 | 2,330 | 2,535 | 1 | 2 | - | 2 | - | - |
| La. | 8 | - | 2 | - | 6,304 | 4,641 | - | 12 | 1 | 3 | - | - |
| Okla. | 2 | 1 | 1 | - | 3,083 | 3,738 | 9 | 4 | - | 3 | - | - |
| Tex. | 27 | 6 | 11 | - | 16,217 | 19,753 | 21 | 14 | 2 | 24 | - | 3 |
| MOUNTAIN | 9 | - | 6 | - | 6,264 | 6,764 | 35 | 21 | 6 | 4 | 2 | 6 |
| Mont. | - | - | - | - | 284 | 333 | - | - | - | - | - | - |
| Idaho | - | - | - | - | 304 | 351 | 3 | - | - | - | - | - |
| Wyo. | - | - | - | - | 179 | 192 | - | - | - | 1 | - | - |
| Colo. | 4 | - | 3 | - | 1,778 | 1,971 | 12 | 4 | 1 | - | - | - |
| N. Mex. | - | - | - | - | 771 | 905 | 7 | 2 | 1 | - | 1 | - |
| Ariz. | 5 | - | 1 | - | 1,579 | 1,605 | 9 | 5 | 2 | 3 | 1 | 4 |
| Utah | - | - | 2 | - | 342 | 314 | - | 6 | 1 | - | - | 1 |
| Nev. | - | - | - | - | 1,027 | 1,093 | 4 | 4 | 1 | - | - | 1 |
| PACIFIC | 226 | 39 | 46 | 2 | 29,377 | 32,461 | 163 | 101 | 13 | 18 | 3 | 29 |
| Wash. | 7 | 1 | 1 | - | 1,988 | 2,475 | 4 | 6 | - | 2 | - | 1 |
| Oreg. | 1 | - | - | - | 1,766 | 1,678 | 15 | 4 | - | - | - | 1 |
| Calif. | 216 | 24 | 43 | 2 | 24,397 | 26,909 | 140 | 90 | 13 | 16 | 3 | 19 |
| Alaska | - | - | - | - | 716 | 743 | 1 | - | - | - | - | - |
| Hawaii | 2 | 14 | 2 | - | 510 | 656 | 3 | 1 | - | - | - | 8 |
| Guam | - | U | - | - | 50 | 54 | U | U | U | U | U | - |
| P.R. | 11 | 2 | - | - | 859 | 677 | 1 | 12 | - | - | - | - |
| V.I. | - | 1 | - | - | 106 | 74 | - | - | - | - | - | - |
| Pac. Trust Terr. | - | U | - | - | - | - | U | U | U | U | U | - |

N: Not notifiable U: Unavailable

**TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending March 31, 1984 and April 2, 1983 (13th Week)**

| Reporting Area | Malaria | Measles (Rubeola) | | | | | Menin-gococcal Infections | Mumps | | Pertussis | | | Rubella | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Indigenous | | Imported * | | Total | | | | | | | | | |
| | Cum. 1984 | 1984 | Cum. 1984 | 1984 | Cum. 1984 | Cum. 1983 | Cum. 1984 | 1984 | Cum. 1984 | 1984 | Cum. 1984 | Cum. 1983 | 1984 | Cum. 1984 | Cum. 1983 |
| UNITED STATES | 139 | 45 | 397 | 9 | 36 | 497 | 849 | 99 | 923 | 34 | 426 | 353 | 16 | 137 | 283 |
| NEW ENGLAND | 15 | - | - | - | - | 2 | 65 | 3 | 41 | - | 10 | 17 | 1 | 16 | 2 |
| Maine | - | - | - | - | - | - | 1 | - | 12 | - | - | - | - | 1 | - |
| N.H. | - | - | - | - | - | - | 4 | - | 4 | - | 2 | 3 | - | - | - |
| Vt. | 1 | - | - | - | - | - | 19 | - | 2 | - | 5 | 3 | - | - | 1 |
| Mass. | 8 | - | - | - | - | 1 | 21 | 2 | 18 | - | 2 | 10 | 1 | 15 | 1 |
| R.I. | 1 | - | - | - | - | - | 4 | - | 1 | - | 1 | 1 | - | - | - |
| Conn. | 5 | - | - | - | - | 1 | 16 | 1 | 4 | - | - | - | - | - | - |
| MID ATLANTIC | 13 | 3 | 12 | 3 | 6 | 11 | 109 | 5 | 121 | 1 | 24 | 62 | 1 | 4 | 17 |
| Upstate N.Y. | 4 | - | - | - | - | 2 | 39 | 3 | 29 | 1 | 14 | 33 | - | 2 | 11 |
| N.Y. City | 1 | 1 | 10 | - | - | 8 | 12 | - | 3 | - | 1 | 8 | 1 | 1 | 2 |
| N.J. | 5 | - | - | - | 3 | 1 | 30 | 2 | 80 | - | 1 | 8 | - | 1 | 1 |
| Pa. | 3 | 2 | 2 | 3§ | 3 | - | 28 | - | 9 | - | 8 | 13 | - | - | 3 |
| E.N. CENTRAL | 14 | - | 113 | - | 2 | 301 | 125 | 53 | 328 | 21 | 152 | 102 | 2 | 18 | 46 |
| Ohio | 4 | - | 1 | - | 2 | 1 | 49 | 29 | 108 | 2 | 28 | 32 | - | 1 | 1 |
| Ind. | - | - | 3 | - | - | 202 | 16 | 4 | 21 | 19 | 99 | 7 | - | 1 | 2 |
| Ill. | 2 | - | 20 | - | - | 93 | 19 | 9 | 73 | - | 8 | 49 | - | 9 | 20 |
| Mich. | 4 | - | 89 | - | - | 5 | 28 | 11 | 101 | - | 10 | 6 | 2 | 5 | 9 |
| Wis. | 4 | - | - | - | - | - | 13 | - | 25 | - | 8 | 8 | - | 2 | 14 |
| W.N. CENTRAL | 6 | - | - | - | - | - | 52 | 7 | 62 | 4 | 62 | 19 | 3 | 15 | 18 |
| Minn. | - | - | - | - | - | - | 7 | - | 1 | 1 | 3 | 7 | - | 1 | 3 |
| Iowa | 1 | - | - | - | - | - | 13 | 2 | 13 | - | 3 | 2 | - | - | - |
| Mo. | 4 | - | - | - | - | - | 17 | - | 5 | 1 | 10 | 2 | - | - | - |
| N. Dak. | - | - | - | - | - | - | 1 | - | 1 | - | - | - | - | 2 | - |
| S. Dak. | - | - | - | - | - | - | 2 | - | - | - | 1 | - | - | - | - |
| Nebr. | - | - | - | - | - | - | 3 | - | 1 | - | 2 | - | - | - | - |
| Kans. | 1 | - | - | - | - | - | 9 | 5 | 41 | 2 | 43 | 8 | 3 | 12 | 15 |
| S. ATLANTIC | 21 | - | 1 | - | 5 | 82 | 203 | 7 | 75 | 5 | 48 | 49 | 3 | 14 | 24 |
| Del. | 2 | - | - | - | - | - | 1 | - | 2 | - | - | - | - | - | - |
| Md. | 5 | - | - | - | - | 1 | 15 | 1 | 17 | - | 3 | 4 | - | - | - |
| D.C. | - | - | - | - | - | - | 2 | - | - | - | - | - | - | - | - |
| Va. | 4 | - | 1 | - | 1 | 2 | 20 | 1 | 5 | - | 7 | 18 | - | - | 1 |
| W. Va. | - | - | - | - | - | - | 3 | 1 | 15 | 1 | 6 | 2 | - | - | - |
| N.C. | 3 | - | - | - | - | - | 26 | - | 10 | 2 | 17 | 1 | - | - | 1 |
| S.C. | 1 | - | - | - | - | 3 | 16 | - | 1 | - | 1 | 2 | - | - | - |
| Ga. | 1 | - | - | - | - | 6 | 47 | 2 | 5 | - | 2 | 16 | 1 | 2 | 5 |
| Fla. | 5 | - | - | - | 4 | 70 | 73 | 2 | 20 | 2 | 12 | 6 | 2 | 12 | 17 |
| E.S. CENTRAL | - | - | 1 | - | 2 | - | 38 | 2 | 15 | - | 2 | 4 | - | 1 | 5 |
| Ky. | - | - | 1 | - | - | - | 4 | - | 3 | - | 1 | 2 | - | - | 5 |
| Tenn. | - | - | - | - | 2 | - | 17 | 2 | 8 | - | 1 | 2 | - | - | - |
| Ala. | - | - | - | - | - | - | 10 | - | 3 | - | - | - | - | 1 | - |
| Miss. | - | - | - | - | - | - | 5 | - | 3 | - | - | - | - | - | - |
| W.S. CENTRAL | 8 | 19 | 89 | 5 | 5 | 42 | 106 | 1 | 51 | - | 40 | 31 | 1 | 12 | 49 |
| Ark. | - | - | - | - | - | 10 | 12 | - | 3 | - | 10 | 2 | 1 | 2 | - |
| La. | 1 | - | - | - | - | - | 17 | - | - | - | 1 | 2 | - | - | 9 |
| Okla. | 2 | - | - | - | - | - | 14 | N | N | - | 28 | 11 | - | - | - |
| Tex. | 3 | 19 | 89 | 5§ | 5 | 32 | 63 | 1 | 48 | - | 1 | 16 | - | 10 | 40 |
| MOUNTAIN | 5 | - | 44 | - | 8 | 1 | 34 | 3 | 76 | 2 | 43 | 54 | - | 3 | 11 |
| Mont. | - | - | - | - | - | - | 1 | - | 3 | - | 19 | 1 | - | - | 2 |
| Idaho | - | - | - | - | - | - | 4 | - | 5 | - | 1 | 2 | - | 1 | 2 |
| Wyo. | - | - | - | - | - | - | - | - | 1 | 2 | 3 | 4 | - | - | 1 |
| Colo. | 1 | - | - | - | - | 1 | 15 | 2 | 8 | - | 12 | 33 | - | - | - |
| N. Mex. | - | - | 21 | - | 8 | - | 6 | N | N | - | 2 | 4 | - | - | - |
| Ariz. | 2 | - | - | - | - | - | 5 | - | 54 | - | 3 | 6 | - | - | 4 |
| Utah | 2 | - | 23 | - | - | - | 3 | 1 | 4 | - | 1 | 4 | - | 2 | 1 |
| Nev. | - | - | - | - | - | - | - | - | 1 | - | 2 | - | - | - | 1 |
| PACIFIC | 59 | 23 | 137 | 1 | 8 | 58 | 119 | 18 | 154 | 1 | 45 | 15 | 5 | 54 | 111 |
| Wash. | 2 | 15 | 28 | - | - | 1 | 18 | 1 | 21 | - | 8 | 1 | 1 | 1 | 1 |
| Oreg. | 1 | - | - | - | - | 5 | 19 | N | N | - | 5 | 2 | - | - | 6 |
| Calif. | 53 | 8 | 109 | 1† | 6 | 51 | 79 | 16 | 124 | 1 | 19 | 12 | 4 | 52 | 104 |
| Alaska | - | - | - | - | - | - | 2 | - | 3 | - | - | - | - | - | - |
| Hawaii | 3 | - | - | - | 2 | 1 | 1 | 1 | 6 | - | 13 | - | - | 1 | - |
| Guam | - | U | 27 | U | 1 | - | 1 | U | 3 | U | - | - | U | 1 | - |
| P.R. | 2 | - | - | - | - | 46 | 2 | 1 | 39 | - | - | 3 | - | 1 | 1 |
| V.I. | - | - | - | - | - | 5 | - | - | 3 | - | - | - | - | - | 1 |
| Pac. Trust Terr. | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - |

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

**TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending March 31, 1984 and April 2, 1983 (13th Week)**

| Reporting Area | Syphilis (Civilian) (Primary & Secondary) | | Toxic-shock Syndrome | Tuberculosis | | Tula-remia | Typhoid Fever | Typhus Fever (Tick-borne) (RMSF) | Rabies, Animal |
|---|---|---|---|---|---|---|---|---|---|
| | Cum. 1984 | Cum. 1983 | 1984 | Cum. 1984 | Cum. 1983 | Cum. 1984 | Cum. 1984 | Cum. 1984 | Cum. 1984 |
| UNITED STATES | 7,118 | 8,349 | 8 | 4,926 | 5,295 | 19 | 67 | 13 | 1,050 |
| NEW ENGLAND | 159 | 201 | - | 132 | 138 | 1 | 1 | - | 6 |
| Maine | 1 | 2 | - | 8 | 10 | - | - | - | 6 |
| N.H. | 2 | 8 | - | 9 | 13 | - | - | - | - |
| Vt. | - | 1 | - | 3 | 1 | - | - | - | - |
| Mass. | 97 | 131 | - | 67 | 65 | 1 | - | - | - |
| R.I. | 7 | 5 | - | 14 | 16 | - | - | - | - |
| Conn. | 52 | 54 | - | 31 | 33 | - | 1 | - | - |
| MID ATLANTIC | 988 | 1,014 | - | 914 | 1,019 | - | 10 | 1 | 69 |
| Upstate N.Y. | 62 | 79 | - | 143 | 170 | - | 5 | 1 | 3 |
| N.Y. City | 576 | 603 | - | 368 | 390 | - | 2 | - | - |
| N.J. | 187 | 190 | - | 195 | 222 | - | 3 | - | - |
| Pa. | 144 | 142 | - | 208 | 237 | - | - | - | 66 |
| E.N. CENTRAL | 289 | 484 | 3 | 849 | 724 | - | 7 | 1 | 40 |
| Ohio | 53 | 121 | 1 | 127 | 125 | - | 2 | 1 | 3 |
| Ind. | 40 | 46 | 1 | 65 | 90 | - | 1 | - | 5 |
| Ill. | 60 | 232 | - | 280 | 306 | - | 2 | - | 23 |
| Mich. | 91 | 61 | 1 | 164 | 166 | - | - | - | 1 |
| Wis. | 25 | 24 | - | 33 | 37 | - | 2 | - | 8 |
| W.N. CENTRAL | 121 | 99 | 1 | 128 | 190 | 6 | 2 | 2 | 132 |
| Minn. | 24 | 44 | - | 20 | 31 | - | 2 | - | 14 |
| Iowa | 10 | 4 | - | 20 | 25 | - | - | - | 37 |
| Mo. | 69 | 34 | - | 58 | 97 | 6 | - | 2 | 11 |
| N. Dak. | - | - | 1 | 4 | - | - | - | - | 24 |
| S. Dak. | 2 | - | - | 3 | 16 | - | - | - | 25 |
| Nebr. | 5 | 5 | - | 7 | 5 | - | - | - | 6 |
| Kans. | 11 | 12 | - | 14 | 16 | - | - | - | 15 |
| S. ATLANTIC | 2,211 | 2,131 | - | 1,109 | 1,008 | 2 | 9 | 1 | 363 |
| Del. | 8 | 12 | - | 14 | 6 | - | - | - | - |
| Md. | 141 | 114 | - | 128 | 78 | - | - | - | 217 |
| D.C. | 78 | 85 | - | 34 | 33 | - | 3 | - | - |
| Va. | 118 | 154 | - | 107 | 90 | - | 3 | 1 | 78 |
| W. Va. | 8 | 6 | - | 43 | 48 | - | - | - | 9 |
| N.C. | 244 | 199 | - | 170 | 115 | - | 1 | - | 1 |
| S.C. | 205 | 155 | - | 118 | 89 | - | 1 | - | 4 |
| Ga. | 359 | 403 | - | 147 | 205 | 2 | - | - | 37 |
| Fla. | 1,050 | 1,003 | - | 348 | 344 | - | 1 | - | 17 |
| E.S. CENTRAL | 451 | 566 | 1 | 453 | 501 | - | 2 | 3 | 64 |
| Ky. | 26 | 35 | 1 | 109 | 134 | - | - | - | 16 |
| Tenn. | 106 | 151 | - | 137 | 139 | - | 2 | 1 | 31 |
| Ala. | 149 | 228 | - | 165 | 145 | - | - | 2 | 17 |
| Miss. | 170 | 152 | - | 42 | 83 | - | - | - | - |
| W.S. CENTRAL | 1,727 | 2,147 | 2 | 494 | 576 | 4 | 5 | 4 | 215 |
| Ark. | 65 | 53 | - | 43 | 46 | 3 | - | 1 | 28 |
| La. | 322 | 426 | - | 64 | 110 | - | 1 | 1 | 7 |
| Okla. | 55 | 59 | 2 | 60 | 63 | 1 | 1 | - | 26 |
| Tex. | 1,285 | 1,609 | - | 317 | 357 | - | 3 | 2 | 154 |
| MOUNTAIN | 172 | 193 | 1 | 108 | 147 | 4 | 2 | - | 26 |
| Mont. | - | 4 | - | 7 | 13 | - | 1 | - | 14 |
| Idaho | 8 | 3 | - | 5 | 11 | - | - | - | - |
| Wyo. | 1 | 3 | 1 | - | 2 | - | - | - | - |
| Colo. | 37 | 45 | - | 7 | 11 | 1 | - | - | - |
| N. Mex. | 28 | 66 | - | 29 | 27 | - | 1 | - | 5 |
| Ariz. | 65 | 38 | - | 44 | 61 | 1 | - | - | 7 |
| Utah | 8 | 8 | - | 9 | 11 | 2 | - | - | - |
| Nev. | 29 | 26 | - | 7 | 11 | - | - | - | - |
| PACIFIC | 1,040 | 1,514 | - | 951 | 992 | 2 | 29 | 1 | 135 |
| Wash. | 29 | 52 | - | 37 | 58 | - | 1 | - | 1 |
| Oreg. | 32 | 26 | - | 37 | 47 | 1 | - | 1 | - |
| Calif. | 955 | 1,405 | - | 802 | 810 | 1 | 25 | - | 129 |
| Alaska | 1 | 7 | - | 20 | 13 | - | 1 | - | 5 |
| Hawaii | 23 | 24 | - | 55 | 64 | - | 2 | - | - |
| Guam | - | - | U | 3 | 2 | - | - | - | - |
| P.R. | 227 | 212 | - | 75 | 119 | - | 2 | - | 10 |
| V.I. | 6 | 7 | - | - | 1 | - | - | - | - |
| Pac. Trust Terr. | - | - | U | - | - | - | - | - | - |

U: Unavailable

## TABLE IV. Deaths in 121 U.S. cities,* week ending March 31, 1984 (13th Week Ending)

| Reporting Area | All Causes, By Age (Years) | | | | | | P&I** Total |
|---|---|---|---|---|---|---|---|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | |
| NEW ENGLAND | 682 | 498 | 127 | 30 | 13 | 14 | 57 |
| Boston, Mass. | 174 | 113 | 41 | 12 | 2 | 6 | 28 |
| Bridgeport, Conn. | 47 | 36 | 8 | 1 | 2 | - | 2 |
| Cambridge, Mass. | 33 | 28 | 3 | 1 | - | 1 | 4 |
| Fall River, Mass. | 27 | 21 | 6 | - | - | - | - |
| Hartford, Conn. | 65 | 48 | 11 | 3 | - | 3 | 2 |
| Lowell, Mass. | 21 | 15 | 6 | - | - | - | 1 |
| Lynn, Mass. | 15 | 13 | 2 | - | - | - | - |
| New Bedford, Mass. | 26 | 24 | 1 | - | 1 | - | 1 |
| New Haven, Conn. | 60 | 41 | 8 | 7 | 3 | 1 | 2 |
| Providence, R.I. | 70 | 50 | 16 | 2 | 2 | - | 9 |
| Somerville, Mass. | 8 | 6 | 2 | - | - | - | - |
| Springfield, Mass. | 48 | 34 | 9 | 2 | 2 | 1 | 2 |
| Waterbury, Conn. | 24 | 22 | 2 | - | - | - | 5 |
| Worcester, Mass. | 64 | 47 | 12 | 2 | 1 | 2 | 1 |
| MID. ATLANTIC | 2,762 | 1,807 | 600 | 210 | 67 | 77 | 148 |
| Albany, N.Y. | 50 | 33 | 8 | 5 | 1 | 3 | - |
| Allentown, Pa. | 16 | 14 | 2 | - | - | - | - |
| Buffalo, N.Y. | 135 | 84 | 32 | 11 | 4 | 4 | 16 |
| Camden, N.J. | 50 | 30 | 9 | 3 | 6 | 2 | 2 |
| Elizabeth, N.J. | 27 | 21 | 4 | 2 | - | - | 4 |
| Erie, Pa.† | 36 | 24 | 7 | 4 | 1 | - | 1 |
| Jersey City, N.J. | 48 | 30 | 15 | 1 | 1 | 1 | 1 |
| N.Y. City, N.Y. | 1,478 | 965 | 311 | 129 | 30 | 43 | 77 |
| Newark, N.J. | 64 | 29 | 24 | 6 | 3 | 1 | 7 |
| Paterson, N.J. | 22 | 15 | 4 | 2 | - | 1 | 4 |
| Philadelphia, Pa.† | 367 | 231 | 87 | 25 | 11 | 13 | 20 |
| Pittsburgh, Pa.† | 69 | 37 | 23 | 6 | 1 | 2 | - |
| Reading, Pa. | 28 | 21 | 6 | 1 | - | - | 1 |
| Rochester, N.Y. | 118 | 83 | 24 | 4 | 5 | 2 | 6 |
| Schenectady, N.Y. | 26 | 21 | 4 | 1 | - | - | 1 |
| Scranton, Pa.† | 30 | 23 | 7 | - | - | - | 2 |
| Syracuse, N.Y. | 109 | 76 | 20 | 5 | 4 | 4 | - |
| Trenton, N.J. | 36 | 25 | 9 | 2 | - | - | 1 |
| Utica, N.Y. | 19 | 16 | 1 | 2 | - | - | 2 |
| Yonkers, N.Y. | 34 | 29 | 3 | 1 | - | 1 | 3 |
| E.N. CENTRAL | 2,390 | 1,685 | 459 | 113 | 62 | 62 | 89 |
| Akron, Ohio | 56 | 34 | 14 | 1 | 5 | 2 | - |
| Canton, Ohio | 37 | 28 | 8 | - | - | 1 | 2 |
| Chicago, Ill. § | 542 | 468 | 12 | 11 | 19 | 23 | 14 |
| Cincinnati, Ohio | 168 | 118 | 41 | 5 | 3 | 1 | 20 |
| Cleveland, Ohio | 156 | 95 | 42 | 12 | 5 | 2 | 4 |
| Columbus, Ohio | 130 | 86 | 29 | 9 | 4 | 2 | 3 |
| Dayton, Ohio | 132 | 79 | 42 | 9 | 2 | - | 4 |
| Detroit, Mich. | 280 | 156 | 83 | 24 | 6 | 11 | 9 |
| Evansville, Ind. | 46 | 30 | 11 | 4 | 1 | - | 1 |
| Fort Wayne, Ind. | 58 | 41 | 9 | 3 | 4 | 1 | 7 |
| Gary, Ind. | 22 | 10 | 10 | 2 | - | - | 1 |
| Grand Rapids, Mich. | 76 | 56 | 17 | 1 | 2 | - | 4 |
| Indianapolis, Ind. | 177 | 113 | 40 | 16 | 4 | 4 | - |
| Madison, Wis. | 31 | 21 | 6 | 3 | 1 | - | 1 |
| Milwaukee, Wis. | 147 | 103 | 33 | 3 | 3 | 5 | 3 |
| Peoria, Ill. | 51 | 36 | 8 | 4 | - | 3 | 7 |
| Rockford, Ill. | 43 | 32 | 8 | 1 | 1 | 1 | 4 |
| South Bend, Ind. | 57 | 48 | 8 | 1 | - | - | 4 |
| Toledo, Ohio | 107 | 73 | 26 | 2 | - | 6 | 1 |
| Youngstown, Ohio | 74 | 58 | 12 | 2 | 2 | - | - |
| W.N. CENTRAL | 768 | 533 | 159 | 32 | 16 | 28 | 40 |
| Des Moines, Iowa | 79 | 55 | 18 | 2 | - | 4 | 2 |
| Duluth, Minn. | 23 | 13 | 6 | 3 | - | 1 | 1 |
| Kansas City, Kans. | 24 | 13 | 6 | 3 | 2 | - | 1 |
| Kansas City, Mo. | 118 | 72 | 36 | 2 | 3 | 5 | 9 |
| Lincoln, Nebr. | 38 | 30 | 7 | 1 | - | - | 4 |
| Minneapolis, Minn. | 92 | 68 | 11 | 6 | 1 | 6 | 5 |
| Omaha, Nebr. | 86 | 61 | 18 | 5 | 1 | 1 | 3 |
| St. Louis, Mo. | 158 | 120 | 28 | 5 | 3 | 2 | 6 |
| St. Paul, Minn. | 77 | 57 | 12 | 1 | 4 | 3 | 2 |
| Wichita, Kans. | 73 | 44 | 17 | 4 | 2 | 6 | 7 |
| S. ATLANTIC | 1,232 | 750 | 286 | 94 | 44 | 58 | 55 |
| Atlanta, Ga. | 155 | 88 | 42 | 16 | 5 | 4 | 5 |
| Baltimore, Md. | 228 | 131 | 60 | 18 | 8 | 11 | 11 |
| Charlotte, N.C. | 74 | 48 | 13 | 8 | - | 5 | 5 |
| Jacksonville, Fla. | 88 | 48 | 31 | 4 | 3 | 2 | 3 |
| Miami, Fla. | 97 | 45 | 30 | 11 | 2 | 9 | 2 |
| Norfolk, Va. | 63 | 38 | 15 | 3 | 1 | 6 | 4 |
| Richmond, Va. | 94 | 57 | 22 | 6 | 5 | 4 | 6 |
| Savannah, Ga. | 35 | 24 | 6 | 3 | - | 2 | 2 |
| St. Petersburg, Fla. | 137 | 116 | 13 | 2 | 4 | 2 | 5 |
| Tampa, Fla. | 71 | 44 | 13 | 2 | 7 | 5 | 3 |
| Washington, D.C. | 144 | 87 | 25 | 18 | 7 | 7 | 5 |
| Wilmington, Del. | 46 | 24 | 16 | 3 | 2 | 1 | 4 |
| E.S. CENTRAL | 763 | 482 | 175 | 52 | 19 | 35 | 37 |
| Birmingham, Ala. | 116 | 68 | 27 | 11 | 2 | 8 | 2 |
| Chattanooga, Tenn. | 47 | 33 | 12 | - | 1 | 1 | 4 |
| Knoxville, Tenn. | 98 | 62 | 23 | 7 | 2 | 4 | 4 |
| Louisville, Ky. | 93 | 63 | 20 | 3 | 3 | 4 | 9 |
| Memphis, Tenn. | 175 | 107 | 34 | 17 | 6 | 11 | 10 |
| Mobile, Ala. | 71 | 44 | 18 | 2 | 3 | 4 | 4 |
| Montgomery, Ala. | 54 | 34 | 11 | 7 | - | 2 | - |
| Nashville, Tenn. | 109 | 71 | 30 | 5 | 2 | 1 | 4 |
| W.S. CENTRAL | 1,710 | 1,035 | 422 | 145 | 57 | 51 | 75 |
| Austin, Tex. | 69 | 46 | 14 | 5 | 1 | 3 | 3 |
| Baton Rouge, La. | 40 | 27 | 9 | 3 | 1 | - | 3 |
| Corpus Christi, Tex. | 64 | 42 | 15 | 4 | 1 | 2 | - |
| Dallas, Tex. | 241 | 132 | 64 | 26 | 9 | 10 | 7 |
| El Paso, Tex. | 54 | 40 | 8 | 5 | 1 | - | 4 |
| Fort Worth, Tex. | 90 | 59 | 14 | 5 | 4 | 8 | 11 |
| Houston, Tex. | 608 | 342 | 172 | 80 | 19 | 15 | 30 |
| Little Rock, Ark. | 72 | 44 | 17 | 5 | 2 | 4 | 2 |
| New Orleans, La. | 155 | 92 | 41 | 7 | 11 | 4 | - |
| San Antonio, Tex. | 160 | 102 | 37 | 14 | 5 | 2 | 11 |
| Shreveport, La. | 64 | 48 | 13 | 2 | 1 | - | - |
| Tulsa, Okla. | 93 | 61 | 18 | 9 | 2 | 3 | 4 |
| MOUNTAIN | 748 | 501 | 144 | 53 | 22 | 28 | 60 |
| Albuquerque, N.Mex. | 76 | 47 | 15 | 9 | 1 | 4 | 3 |
| Colo. Springs, Colo. | 37 | 30 | 2 | 2 | 2 | 1 | 11 |
| Denver, Colo. | 157 | 98 | 35 | 12 | 2 | 10 | 18 |
| Las Vegas, Nev. | 84 | 55 | 20 | 3 | 4 | 2 | 2 |
| Ogden, Utah | 22 | 15 | 4 | 1 | - | 2 | 1 |
| Phoenix, Ariz. | 186 | 118 | 37 | 16 | 8 | 7 | 8 |
| Pueblo, Colo. | 21 | 19 | 1 | - | 1 | - | 3 |
| Salt Lake City, Utah | 47 | 33 | 5 | 5 | 2 | 2 | - |
| Tucson, Ariz. | 118 | 86 | 25 | 5 | 2 | - | 14 |
| PACIFIC | 1,811 | 1,217 | 369 | 116 | 59 | 49 | 90 |
| Berkeley, Calif. | 15 | 10 | 1 | 2 | 1 | 1 | - |
| Fresno, Calif. | 59 | 40 | 13 | 1 | 2 | 3 | 6 |
| Glendale, Calif. | 32 | 25 | 5 | 1 | 1 | - | - |
| Honolulu, Hawaii | 61 | 39 | 16 | 2 | 1 | 3 | 8 |
| Long Beach, Calif. | 95 | 64 | 22 | 5 | 3 | 1 | 4 |
| Los Angeles, Calif. | 466 | 311 | 104 | 30 | 13 | 8 | - |
| Oakland, Calif. | 78 | 50 | 18 | 6 | 1 | 2 | 6 |
| Pasadena, Calif. | 34 | 26 | 4 | 4 | - | - | 4 |
| Portland, Oreg. | 122 | 80 | 22 | 7 | 6 | 7 | 5 |
| Sacramento, Calif. | 78 | 50 | 13 | 7 | 6 | 2 | 5 |
| San Diego, Calif. | 163 | 105 | 29 | 9 | 11 | 9 | 20 |
| San Francisco, Calif. | 157 | 103 | 29 | 14 | 3 | 8 | 4 |
| San Jose, Calif. | 174 | 120 | 37 | 11 | 4 | 2 | 15 |
| Seattle, Wash. | 155 | 106 | 32 | 12 | 2 | 3 | 4 |
| Spokane, Wash. | 46 | 36 | 8 | 1 | 1 | - | 3 |
| Tacoma, Wash. | 76 | 52 | 16 | 4 | 4 | - | 6 |
| TOTAL | 12,866†† | 8,508 | 2,741 | 845 | 359 | 402 | 651 |

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

** Pneumonia and influenza.

† Because of changes in reporting methods in these 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

§ Data not available. Figures are estimates based on average of past 4 weeks.

*Current Trends*

## Update: Styrene, Dioxin, and 1,3-Butadiene in the Workplace

*The National Institute for Occupational Safety and Health (NIOSH) periodically issues documents to transmit new information or to update existing information on specific chemical substances found in the workplace. Three such documents that were recently issued are summarized below. Each is available for distribution as indicated.*

**Styrene:** In December 1983, NIOSH published *Criteria for a Recommended Standard—Occupational Exposure to Styrene.** Styrene—also known as vinylbenzene or phenylethylene—is an aromatic organic compound with the chemical formula $C_6H_5CH = H_2$. It is a commercially important compound used in such products as reinforced plastics, packaging materials, insulation, pipes, automotive components, carpet backcoatings, synthetic rubber, and wall panels. In 1981, 6.6 million pounds of styrene were produced in the United States. NIOSH estimates that at least 30,000 U.S. workers in 1,000 plants are potentially exposed to styrene on a full-time basis, while more than 300,000 workers in over 20,000 facilities are potentially exposed to compounds containing styrene.

The current Occupational Safety and Health Administration (OSHA) standard for occupational exposure to styrene consists of a time-weighted average (TWA) concentration of 100 parts per million (ppm) for an 8-hour day, a ceiling concentration of 200 ppm, and a maximum peak of 600 ppm for no more than 5 minutes in any 3 hours. NIOSH now recommends that worker exposure to styrene not exceed 50 ppm as a TWA concentration for an up-to-10-hour workshift in a 40-hour workweek. This recommendation is based on effects on the central nervous system (CNS) observed among experimental subjects and workers exposed to styrene at TWA concentrations of about 100 ppm. A few investigators have also reported these effects at concentrations less than 100 ppm. The most frequently reported effects of exposure to styrene were subjective symptoms, such as fatique, dizziness, headache, nausea, poor memory, and drowsiness. These symptoms have been substantiated experimentally in human subjects and in clinical studies of workers who demonstrated slower reaction times and impaired balance following exposure to styrene. Abnormal electroencephalograms have also been noted. To prevent CNS depression and irritation of the eyes, nose, skin, and respiratory tract, NIOSH further recommends that exposures not exceed 100 ppm determined as a ceiling concentration by a 15-minute sample.

These limits for exposure to styrene are upper boundaries, and employers should make every effort to maintain exposure concentrations as low as possible. The criteria document presents specific recommendations for medical surveillance and recordkeeping, work practices, and engineering controls to prevent or greatly reduce the health risk to exposed workers. Although the evidence is not strong, exposure to styrene has been implicated in other adverse health effects, such as peripheral neuropathy, abnormal pulmonary function, liver toxicity, teratogenicity, and carcinogenicity. These health effects should be investigated further, and if they are related to styrene exposure, they will provide evidence for considering a reduction in the NIOSH-recommended standard for occupational exposure to styrene.

*The development of criteria documents is a NIOSH responsibility mandated by the Occupational Safety and Health Act of 1970. These documents are used to recommend standards for promulgation by the Department of Labor.

*Styrene, Dioxin, and 1,3-Butadiene – Continued*

Order Document No. PB-84-148295 from the National Technical Information Service, Springfield, Virginia 22161. Cost: $22.00 paper, $4.50 microfiche.

**Dioxin**: On January 23, 1984, NIOSH released *Current Intelligence Bulletin #40: 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD, "Dioxin").*† TCDD occurs as a contaminant in such materials as 2,4,5-trichlorophenol (TCP), 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), and 2-(2,4,5-trichlorophenoxy) propionic acid (silvex). Occupational exposure may occur through contact with these materials or from past contamination of worksites. Currently, no occupational standard exists for exposure to TCDD.

NIOSH recommends that TCDD be regarded as a potential occupational carcinogen, that occupational exposure to TCDD be controlled to the fullest extent feasible, and that decontamination measures be used for TCDD-contaminated work environments. These recommendations are based on studies that demonstrate the carcinogenicity of TCDD in rats and mice. In other animal studies over a wide range of exposure concentrations, TCDD caused teratogenesis, immunologic dysfunction, and effects on hematologic function. Studies of humans exposed to TCDD-contaminated materials indicate that TCDD may be the cause of chloracne, metabolic disorders (porphyria), and other systemic problems and that TCDD may have a potential to cause cancer.

Copies are available without charge from NIOSH Publications, 4676 Columbia Parkway, Cincinnati, Ohio 45226.

**1,3-Butadiene**: On February 9, 1984, NIOSH released *Current Intelligence Bulletin #41: 1,3-Butadiene.* 1,3-butadiene is a colorless, noncorrosive, flammable gas. It is produced as a coproduct in the manufacture of ethylene and by dehydrogenation of n-butene and n-butane. In the United States, it is used mainly in the production of styrene-butadiene rubber and polybutadiene rubber for the tire industry. Other uses include copolymer latexes for carpet backing and paper coating, as well as resins and polymers for pipes and automobile and appliance parts. It is also used as an intermediate in the production of such chemicals as fungicides. NIOSH estimates that, currently, about 65,000 workers are potentially exposed to 1,3-butadiene. The present OSHA standard for occupational exposure is 1,000 ppm (2,200 $mg/M^3$) determined as an 8-hour TWA concentration.

NIOSH recommends that 1,3-butadiene be regarded as a potential occupational carcinogen and teratogen and as a possible reproductive hazard. These recommendations are based on long-term animal studies that demonstrate carcinogenicity, teratogenicity, and adverse effects on the testes and ovaries. Although the excess risk of cancer to workers exposed to specific airborne concentrations of 1,3-butadiene has not yet been determined, the probability of developing cancer would be decreased by reducing exposure.

Appropriate engineering and work-practice controls should be used; producers and users of 1,3-butadiene should disseminate this information to their workers and customers; and professional and trade associations and unions should inform their members of the potential hazards of working with 1,3-butadiene. In addition, NIOSH recommends that the present OSHA standard for exposure to 1,3-butadiene be reexamined.

Copies are available without charge from NIOSH Publications, 4676 Columbia Parkway, Cincinnati, Ohio 45226.

*Reported by Div of Standards Development and Technology Transfer, National Institute for Occupational Safety and Health, CDC.*

---

†NIOSH issues *Current Intelligence Bulletins* (*CIB*) to disseminate new scientific information about occupational hazards. A CIB may draw attention to a hazard previously unrecognized or may report new data suggesting that a known hazard is either more or less dangerous than was previously thought.

# Prospective Evaluation of Health-Care Workers Exposed via Parenteral or Mucous-Membrane Routes to Blood and Body Fluids of Patients with Acquired Immunodeficiency Syndrome

In August 1983, CDC initiated prospective surveillance of health-care workers with documented parenteral or mucous-membrane exposures to potentially infectious body fluids from patients with definite or suspected acquired immunodeficiency syndrome (AIDS). By December 31, 1983, 51 health-care workers with such exposures were enrolled in CDC's surveillance registry through the auspices of participating hospitals, other health-care institutions, and health departments in the United States.* None of these workers has developed signs or symptoms suggestive of AIDS. All but one of these workers had been followed for less than 12 months (see below).

Among the 51 exposed health-care workers studied, 19 (37%) have been reported from New York; nine (18%), from Texas; seven (14%), from Pennsylvania; five (10%) from New Jersey; and 11 (21%), from seven other states. Exposures occurred between April 1981 and November 1983. Length of follow-up of exposed health-care workers ranged from 1 month to 32 months by December 31, 1983 (mean 5.5 months). Twenty-four (47%) of the exposed workers were nurses; nine (18%) were physicians; five (10%) were phlebotomists; three (6%) were respiratory therapists; and the remaining 10 (20%) were health-care workers with less direct patient contact, such as laboratory and maintenance personnel. Eighty percent were white, and 75% were female. Ages ranged from 18 years to 51 years (mean 29 years).

The majority of exposures occurred in direct patient-care areas. Twenty-seven (53%) exposures occurred in patients' rooms or on wards, and 12 (24%) occurred in intensive-care units. Seven incidents (14%) took place in laboratories, and five (10%) occurred in operating rooms or morgues. The types of exposures were: needlestick injuries (65%); cuts with sharp instruments (16%); mucosal exposure (14%); and contamination of open skin lesions with potentially infective body fluids (6%). Post-exposure treatment consisted of local care only in 41%; administration of hepatitis B immune globulin (HBIG) alone or in combination with immune globulin (IG) or tetanus (Td) prophylaxis in 24%; IG alone or with Td in 31%; and Td only in 4%. Among the 12 exposed health-care workers receiving HBIG, three were exposed to AIDS patients reported positive for hepatitis B surface antigen (HBsAg).

*Reported by GA Thomas, MD, MD Anderson Hospital, Houston, Texas; G Talbot, MD, Hospital of the University of Pennsylvania, Philadelphia, J Jahre, MD, St. Luke's Hospital, Bethlehem, C Legaspi, MD, Veterans Administration Medical Center, Lebanon, Pennsylvania; D Silverman, MD, Bellevue Hospital Medical Center, W McKinley, Beth Israel Medical Center, J Gold, MD, Memorial Hospital for Cancer, M Grieco, MD, M Lange, MD, St. Luke's-Roosevelt Hospital Center, J Vieira, MD, Brooklyn Hospital, New York City, C Matkovic, MD, St. John's Episcopal Hospital, Smithtown, A Leporte, MD, Astoria General Hospital, Long Island City, R Stricof, New York State Dept of Health; JA Jacobson, MD, LDS Hospital, Salt Lake City, Utah; MA Sanchez, MD, Englewood Hospital, Englewood, HD Luce, MD, New Jersey State Dept of Health; JA McCutchan, MD, University of California Medical Center, San Diego, L Thrupp, MD, University of California Medical Center, Irvine, California; N Jacobson, MD, Coral Reef General Hospital, Miami, Florida; BP Buggy, St. Luke's Hospital, Milwaukee, Wisconsin; M Eberenz, Mt. Carmel East Hospital, Columbus, Ohio; P Dennehy, MD, Rhode Island Hospital, Providence; AH Everhart, Doctors Hospital, Tucker, Georgia; Div of Immunization, Center for Prevention Svcs, AIDS Activity, Div of Host Factors, Div of Viral Diseases, Hospital Infections Program, Center for Infectious Diseases, CDC.*

**Editorial Note:** The principal goal of this surveillance project is to evaluate the risk, if any, to

*Since December 31, 1983, preliminary reports have been received on an additional 50 exposed health-care workers.

*AIDS — Continued*

health-care workers exposed to potentially infectious materials from AIDS patients. Epidemiologic evidence is consistent with the hypothesis that AIDS is caused by a transmissible infectious agent (*1,2*). AIDS appears to be transmitted by intimate sexual contact or by percutaneous inoculation of blood or blood products. There is no evidence of transmission through casual contact with affected individuals or by airborne spread, and there are no cases of AIDS among health-care workers that can definitely be ascribed to specific occupational exposures. The risk of AIDS transmission to health-care workers through percutaneous or mucosal inoculation of blood or body fluids from AIDS patients remains undefined, although currently available epidemiologic data suggest that the risk of transmission, if any, is small.

Recommended precautions for preventing AIDS in health-care workers have been published (*3-5*). These recommendations are designed to minimize the risk of mucosal or parenteral exposure to potentially infectious materials from AIDS patients. Based on descriptions of the incidents supplied to CDC, over one-third of the exposures among these 51 health-care workers might have been prevented by following recommended precautions. Health-care workers are urged to become familiar with and adhere to these recommendations.

No single form of post-exposure care appears to predominate among personnel reported to CDC, although local wound care only was the largest individual treatment category. Since AIDS patients are often in groups at high risk for hepatitis B, post-exposure prophylaxis should follow guidelines for immunoprophylaxis for viral hepatitis (*6*).

The enrollment phase of this surveillance project is designed to last 3 years. Institutions and investigators wanting information on participation in the project should contact CDC's Hospital Infections Program at (404) 329-3408.

*References*

1. CDC. Update on acquired immune deficiency syndrome (AIDS)—United States. MMWR 1982;31:507-8, 513-4.
2. Francis DP, Curran JW, Essex M. Epidemic acquired immune deficiency syndrome: epidemiologic evidence of a transmissible agent. J Natl Cancer Inst 1983;71:1-4.
3. CDC. Acquired immune deficiency syndrome (AIDS): precautions for clinical and laboratory staffs. MMWR 1982;31:577-80.
4. CDC. Acquired immunodeficiency syndrome (AIDS): precautions for health-care workers and allied professionals. MMWR 1983;32:450-1.
5. Williams WW. Guideline for infection control in hospital personnel. Infect Control 1983;4:326-49.
6. ACIP. Immune globulins for protection against viral hepatitis. MMWR 1981;30:423-8, 433-5.

## *International Notes*

### Quarantine Measures

The following changes should be made in the "Supplement—Health Information for International Travel," *MMWR*, Vol. 32, 1983. Situation as of January 1, 1984:

**BHUTAN**

On page 22, delete: No vaccinations are required. On page 23, insert: *Yellow Fever*—II. On page 11, insert code II.

**BOTSWANA**

*Yellow Fever*—Delete all information on pages 11 and 23. On page 23, insert: No vaccinations are required.

*Quarantine Measures — Continued*

**BRUNEI**

*Cholera* —Delete all information on pages 12 and 24. On page 24, *Yellow Fever* —Insert: A certificate is required ALSO from travelers transiting endemic areas within the preceding 6 days (see pp. 73-74). On page 12, insert * after code.

**BURMA**

*Cholera* and *Yellow Fever* —Delete all information on pages 12, 24, and 25. *Yellow Fever* —Insert code II on pages 12 and 25. On page 25, insert: A certificate is required ALSO from nationals and residents of Burma departing for an infected area.

**CHAD**

On page 26, insert: *Yellow Fever* —Chad recommends vaccination for all travelers over 1 year of age. On page 12, insert *.

**CUBA**

Delete from pages 12, 28, and 113. No vaccinations are required.

**DOMINICAN REPUBLIC**

*Cholera* and *Yellow Fever* —Delete all information on pages 12 and 29. On page 29, insert: No vaccinations are required.

**EGYPT**

*Cholera* —Delete all information on pages 12 and 29.

**GRENADA**

Insert on pages 13, 32, and 113. On page 32, insert: *Yellow Fever* —II. No malaria risk.

**JAMAICA**

*Yellow Fever* —Change code to II on pages 14 and 39.

**LIBERIA**

On page 41, *Yellow Fever* —Insert: Liberia recommends vaccination.

**MADAGASCAR**

*Cholera* —Delete all information on pages 14 and 41. On page 41, *Yellow Fever* —Insert: A certificate is required ALSO from travelers transiting infected areas. On page 14, insert * after code.

**SAINT KITTS-NEVIS**

On pages 16 and 50, change name to **SAINT CHRISTOPHER AND NEVIS**. On pages 4 and 115, change **SAINT KITTS** to **SAINT CHRISTOPHER**.

**SAINT LUCIA**

On page 50, *Yellow Fever* —Delete note. On page 16, delete * by code.

**SIERRA LEONE**

*Yellow Fever* —On pages 16 and 51, delete all information. Insert code II.

**SWAZILAND**

*Cholera* —Delete all information on pages 16 and 54.

**TANZANIA, UNITED REPUBLIC OF**

On page 54, insert: *Cholera* —A certificate is required for travelers destined for Zanzibar and Pemba Islands. On page 16, insert *.

**TOGO**

*Yellow Fever* —On pages 17 and 55, change code to III.

**ZAMBIA**

*Cholera* —On pages 17 and 58, delete all information.

The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.



☆U.S. Government Printing Office: 1984-746-149/2029B Region IV



HHS Publication No. (CDC) 84-8017